

PART VII: Aquaculture – Return of the Oyster Farmers

Bay in the Balance



By DEBORA BABIN KATZ

Oyster farming is not new to Duxbury. Its history traces to the early 1900s, and, of course, Native Americans and early colonists relied on its cultivation as a primary food source.

Today, thanks to the ingenuity of a few entrepreneurs and relatively new technology, oyster aquaculture is making a comeback in Duxbury Bay. It's a growing industry here and nationwide and the prospects seem bright for further growth.

That's good news for oyster lovers. On the flip side is the fact that some environmentalists worry that the revived aquaculture will further tax the resources of the already overburdened bay.

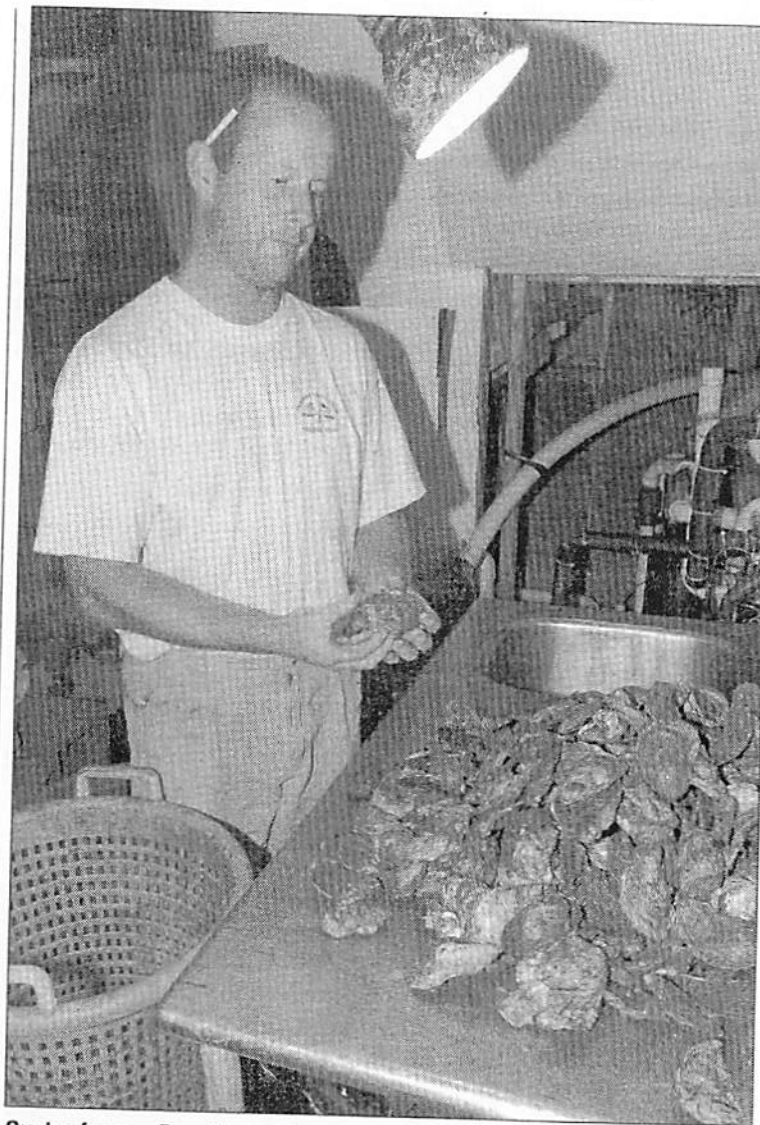
Proponents dismiss such concerns, noting that not just anyone can become an oyster farmer. There are too many barriers, legal and otherwise, that make it difficult to begin oyster farming and it's harder still to make it a success. There is, they say, an inherent system of checks and balances already in place.

mouth of the Adriatic Sea to other parts of Italy. They placed the oysters in saltwater pools, and "fattened them up" by feeding them wine.

In Duxbury, the earliest recorded commercial oyster grants date to 1901 when the town gave a grant to James Killion, who immediately transferred it to the Rocky Point Oyster Company in Providence. The grant authorized the company to plant and later harvest oysters along the full length of the beach channel south of the Powder Point Bridge. Their seed came from Narragansett Bay. The next year, the grant permitted the same privilege to a section of the main channel north of the bridge.

Mother Nature, however, played a role in this oyster cultivation's failure to succeed in Duxbury. Cold winters caused the bay waters to freeze to more than a foot throughout the harvest season. After three consecutive winters of frozen waters, the project was abandoned. Some residents recalled a small tugboat being used as an icebreaker and men with saws trying to clear a channel; it was to no avail.

In the 1930s and '50s additional attempts were made to seed oysters in the intertidal areas of the bay with little suc-



Oyster farmer Don Merry cleans his catch at his workshop in anticipation of making a shipment.

Photo by David Grossman

1970s and '80s, improved hatchery and grow-out techniques became more effective and commercial oyster aquaculture grew in Massachusetts

seeding program to restore the oyster.

Historically, Massachusetts has lagged behind in oyster aquaculture. Connecticut's

culture industry that primarily produces oysters and quahogs. They included: a highly developed coastline, multiple competing uses of Massachusetts waters, a redundant regulatory system, overbearing and legal issues and the misunderstanding of aquaculture by the public and the fishing industry.

The primary barrier to commercial aquaculture is the tortuous maze of red tape one must travel to obtain an oyster-farming grant. It is an expensive and time gobbling process. Those who succeed in obtaining a grant receive a license that gives exclusive rights to shellfish and possess seed on a specific portion of coastal water and its tidal flats. It is not a transfer of title nor does it indicate any kind of ownership of the licensed area.

Potential aquaculture sites must be "barren" of existing shellfish, eelgrass or any other aquatic vegetation or endangered species. After their plan is accepted, applicants must mark the boundaries of their grant with yellow painted industry buoys that are visible at all tides and marked with the license number.

"It took me a year and half to get my permit, and I was delighted to get it, but some people do drop out during the

Roots of Oyster Farming

The cultivation of oysters has ancient ties. Records indicate that the Japanese were cultivating oysters as early as 2000 B.C., and around 700 B.C., the Romans transported and cultivated oyster seed stock from the

planting of oysters in the Blue Fish River included full-grown oysters that, as Walter Price recalled in 1981, "were soon after misappropriated by local outlaws, all friends of mine though I have to admit I did not share in their gains." By the

Planting the Seed

It is estimated that Americans eat more than 100 million pounds of oysters per year. However, North American waters are nearly expunged of naturally grown oysters. As a result, there is a nationwide

ter industry contributes more than \$200 million annually to the state's economy, and its success prompted Governor William Weld in 1994 to learn why Massachusetts was lagging behind.

Weld's directive produced the Massachusetts White Papers, which outlined the factors constraining our marine aquaculture industry.

Duxbury's veteran oyster farmer who got his first grant 10 years ago. Gregg Morris obtained his license this year and knows first-hand the patience required to get a grant. "A number of guys gave up during the process," he said. Other obstacles in oyster farming include the upfront financial capital needed to start such a ven-



Oyster traps are correctly called mesh bags in trays. At low tide these are visible on the bank of a channel.

Oyster Grants

2001 - 7 Licenses: 14.5 acres

2002 - 16 Licenses: 33 acres

2002 Pending Grants: 3 licenses totaling 8 acres

Maximum Acres allowed per Duxbury Resident: 3 acres

Total Acres of Bay: 19,480 *

Grants to Total Acres: .0016% or less than 1 %

*Total Acres excludes marshes and areas restricted by pollution.

Oyster Aquaculture Harvest

1998 - 139 bushels valued at \$9,730

1999 - 620 bushels valued at \$62,000

2000 - 1,249 bushels valued at \$87,430

2001 - 1,445 bushels valued at \$144,500

Source: Mass. Division of Marine Fisheries

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ture, the threat of disease, the learning curve for new technology, and genetic problems with seed stock. The work is also labor intensive.

The Process

Once a grant is obtained, the real work begins. The process of seeding is a grueling, expensive, highly technical and time consuming venture that some Duxbury oyster farmers are sidestepping by buying larger seed from seasoned farmers like Bennett. Of course, this cuts into profits, but it reduces time and risk. "It takes two years for a real harvest," said Jerry Moles at the Division of Marine Fisheries, "and even that is dependent on water temperatures, food, and predators."

Oyster farmers Don Merry, Christian Horne and Bennett, who sell their oysters under the trade name, Island Creek, started the process at the first stage—at a hatchery in Maine. Here, they bring 50 champion-ship oysters in February where they will spawn under spring like conditions. The eyed larvae will then go through a "fattening up" process that is labor intensive until they reach one to three millimeters in size and metamorphose into an oyster.

By May they are ready for Duxbury waters. First, they will be placed into an upweller located under a floating dock at the Duxbury Bay Maritime School—a joint project with the school's ecology program. "This allows them to grow to a bigger size of a quarter inch.

There are several ways to grow out oysters to market size. Some farmers use trays and move the oysters out into deeper waters; others use a mesh bag system. The preferred method in Duxbury is a combination of trays and mesh bags, but the farmers keep the oysters in bay waters. Many farmers make 90 percent of their equipment. As the oysters grow, farmers cut the numbers down in each bag and increase the mesh sizes to allow increased water flow. It's an extremely labor intensive process. "We're splitting bags every three weeks," said Merry.

The Harvest

A Duxbury oyster farmer who "plants" 500,000 seeds on his lease is fortunate if, two years later, he harvests 200,000 adult oysters. The retail price of an oyster in 2001 worked out to 75 cents a piece, said Moles,



Having passed the test for size and quality, these specimens are ready to be shipped out to area restaurants as Island Creek Oysters.

Photo by David Grossman



"and this year it was down to 50 cents." The wholesale price was about forty cents, said Bennett. In 2001, Duxbury's total harvest was 1,445 bushels valued at \$144,500.

"Some, including myself, think that these numbers are under reported and not completely true to the industry's volume," said Scott Soares, the aquaculture coordinator for the Department of Food and Agriculture. (The Mass. Division of Marine Fisheries relies on the farmers' required annual reports to calculate local har-

lation that the birds feed on, but if we're talking about one or two acres, that's maybe not a big deal," said Brian Harrington, a senior scientist at the Manomet Center for Conservation Sciences. If the growers are successful, however, says Harrington, "it isn't going to stay one or two acres, and so we should be looking at that so we understand the trade-offs."

Aware of the concern of environmentalists, the Duxbury Grower's Association proposed in 2000 that there be 200 feet

which is the smallest size that you can handle out on the flats," explained Horne.

Sizing Up — The hands of Don Merry measure the size of an oyster to learn if it's ready to ship. The inside diameter of the ring is three inches.

Photo by David Grossman



Oyster farmers make their own mesh bags to grow oysters. At work are Christian Horne, Skip Bennett, Don Merry and Mike George.

Photo by David Grossman

vests.) Since it takes at least two years for a farmer's first harvest, Duxbury's current numbers do not reflect those who recently entered the business. The next two years should show a considerable jump in bushels harvested.

Oyster farming is no fast cash business. "It has been my experience that anyone who gets in it for the money, drops out," said Bennett. The long hours and seven-day work-weeks is nothing compared to cold winters when the farmers are "wearing fourteen layers of clothes out there and breaking ice," said Merry. Farmers say it takes four to five years to actually make a living at oyster aquaculture. "If I can retain 50 percent of what I started with, and keep the lights on at my house, I'm happy," added Horne.

The Environment.

Some ecologists question the impact shellfish grants have had on shorebirds and other wildlife. "It takes away from the normal invertebrate popu-

between each grant (existing regulations call for 75 feet) to offer more protection of the tidal flats for shorebirds. Their proposal was not accepted.

Oyster farmers say their products can benefit the environment. Oysters, they note, have been used to improve water quality in the Chesapeake Bay and other estuarine areas by acting as the "kidneys" of the bay.

"One adult oyster can siphon 50 gallons of water a day," said Bennett, "and 200 oysters will bind the same amount of nitrogen that 54 adult's create." It's nature's Title Five!

Bay in the Balance



CREDITS

The Bay in the Balance series is edited by David Cutler. Special thanks to David Grossman for providing much of the photography for this series. For more of his work visit www.gurnetroad.com

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